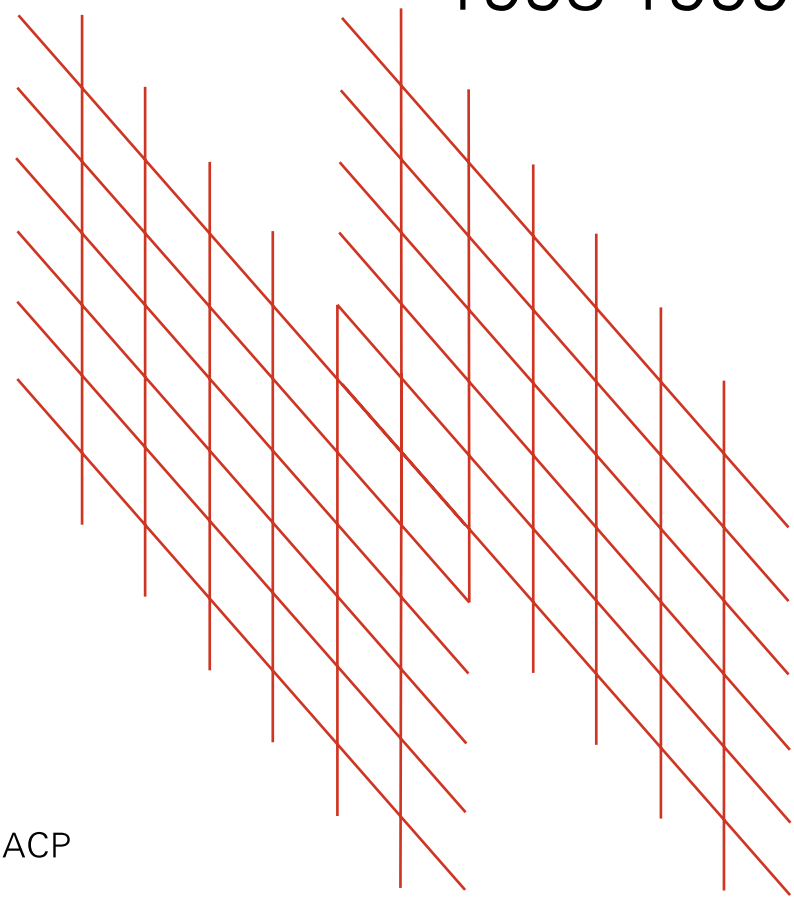
STATE OF MARYLAND

MARYLAND
HEALTH CARE
COMMISSION

Practitioner Utilization

Trends within **Privately Insured Patients**

1998-1999



Released June 2001

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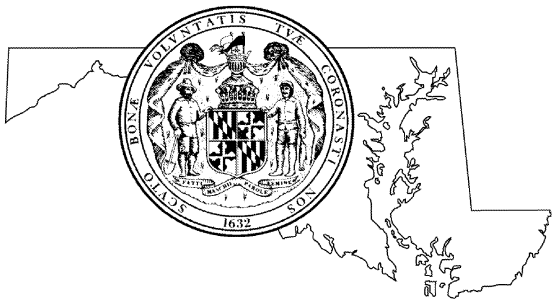

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i. Acknowledgements

This report would not have been possible without the assistance of private health insurance companies and health maintenance organizations that provided information (identified in Appendix A). The Maryland Health Care Commission recognizes that in providing data, the contributors dedicated considerable staff and computer resources. The Commission is most grateful for the help of the organizations that submitted information. The Commission recognizes the increased attention that many individuals in these organizations have given the data collection requirements this year. The many individuals that answered questions and reviewed results deserve special thanks.

The Commission would like to thank **Dr. Christopher B. Forrest** of the ***Health Services Research and Development Center at the Johns Hopkins School of Public Health*** for assisting MHCC in the use of the Expanded Diagnostic Clusters (EDC) classification system developed by Dr. Forrest.

The development of the Medical Care Data Base and the preparation of this report were conducted under contract with Social and Scientific Systems (SSS) of Bethesda, Maryland and their subcontractor, REDA International of Silver Spring, Maryland. The overall effort at SSS was under the direction of **Ms. Sophie Nemirovsky. Dr. Marsha G. Goldfarb, and Dr. Daniel Walden** assisted the Commission by preparing sections of this report. **Ms. Patricia Caldwell** and **Ms. Betsy Covel** assisted with editing and report design. A programming team at SSS consisting of **Dr. Raymond Hu, Ms. Laurie Hamilton, Ms. Nancy Odaka, Mr. Adrien Ndikumwami, Ms. Lauralynn Smith, and Ms. Julie Kale-Jones** edited the payer data submissions, organized the Medical Care Data Base, and completed the numerous data analyses included in this report. The Commission thanks the entire SSS team.

Notes:

- All years reflect calendar years unless otherwise indicated.
- Numbers in the text and tables may not add to totals because of rounding.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Practitioner Utilization: Trends within Privately Insured Patients, 1998-1999 presents information on the use of practitioner services by Maryland residents insured through private insurance companies and health maintenance organizations. Information presented in the report is based on the analysis of the 1998 and 1999 Medical Care Data Base, subset to reflect the services provided by private HMOs and non-HMOs. The analyses reflect the experience of about 2.2 million recipients that received practitioner health care services. Unlike previous reports that focused on differences among categories of payers and patient populations, this Chartbook examines trends in utilization between 1998 and 1999. These analyses are possible because data collection stabilized sufficiently to allow for examination of changing trends in utilization.

Payers have improved the quality and completeness of data submission. These improvements are a result of payers' investments in meeting data requirements and the Commission staff's technical support. HMOs made the most progress in 1999; the number of patients increased by 27 percent and the volume of HMO services grew by 32 percent. During that period, the Commission estimates that HMOs experienced a small decline in enrollment. The higher volume is attributable to two factors. First, Aetna U.S. HealthCare, Kaiser Permanente, and CIGNA of the Mid-Atlantic significantly improved their data submissions, particularly the reporting of capitated services. Second, some HMOs increased their reliance on fee-for-service (FFS) reimbursement for some primary care services. The increased volume of screening services that are typically provided by a primary care provider (PCP) under HMO systems is consistent with this shift to FFS payment.

Most patients covered by non-HMOs and HMOs are concentrated in a few large corporations. Many companies sell health insurance coverage in Maryland, but decisions made by purchasers and consumers lead to patients concentrating in a few companies. The four largest corporations represented in the Medical Care Data Base cover 80 percent of non-HMO patients and the remaining twenty corporations cover the remaining 20 percent. The four largest HMOs cover a similar percentage of HMO patients with the other five HMOs dividing the remainder. In local jurisdictions, non-HMO patients are even more concentrated. In nine counties a single corporation covers at least 67 percent of patients. Concentration is highest in the Baltimore region where one corporation covers at least 67 percent of patients in four of six jurisdictions. A single HMO corporation covers at least 67 percent of patients in four Maryland counties located principally on the Eastern Shore. Overall, patient concentration is lower among HMOs than among non-HMO products. The National Capital Area has the lowest level of patient concentration for HMO and non-HMO products.

The number of patients that are infants and children has grown faster than their numbers in the state population. The percentage increases for infants and children in the MCDB as a whole are higher than for the adult groups. This development may suggest improving access to care for children. ***The percentage of patients who are male rose for non-HMOs and HMOs between 1998 and 1999 in every region of the state.*** Although males continue to be a minority of patients, the increase in the proportion of male patients suggests increased use of health care services by males. The growth in utilization by infants, children, and males is consistent with the growth in examination and screening related diagnoses and services in the MCDB that suggests otherwise healthy individuals are obtaining care.

Per patient utilization of practitioner services increased for non-HMO and HMO patients from 1998 to 1999. Non-HMO expenditures for the typical patient climbed 11.7 percent from $257 in 1998 to $287 in 1999. Median work relative value units (RVUs) per HMO patient, which includes all fee-for-service and capitated specialty care services, grew by 3.5 percent. However, the average payment per standardized unit of care (work RVU) fell by 1.8 percent

among non-HMOs and held steady for HMO fee-for-service care. Viewed together these findings indicate that utilization is increasing, but payers continue to manage expenditure growth by attempting to control per service payment. The declines or small increases in standardized service unit payment did not keep pace with overall medical inflation, which grew by 2.4 percent in 1999 in the Washington/Baltimore metropolitan area.

Some services and practitioner specialties appear to bear a disproportionate share of efforts to control per service payment. ***Average reimbursement per standardized unit of service fell significantly for services to infants and children in every region.*** Among non-HMOs, the decline was 6.5 percent for infant services and 5.3 percent for children services. HMO payments per standardized unit of service dropped 5.2 percent and 3.7 percent for these respective patient categories. Pediatricians would typically perform the majority of these services.

The largest percentages of non-HMO and HMO patients are treated for diagnoses that fall into the category of Examination and screening, and these percentages increased in 1999, especially for non-HMO patients. ***These results suggest that efforts to encourage preventive care and early screening may be gaining momentum among privately insured populations.*** Ear, nose, and throat problems are the second most common type of diagnosis for non-HMO and HMO patients. Diagnoses that fall into this category range from sinusitis and otitis media to pharyngitis and tonsillitis. Although these conditions are extremely manageable, they are common across patient ages from infants to older adults.

Among conditions with broad health policy or public health importance several notable findings were uncovered. ***About 18.2 percent of non-HMO and 11.3 percent of HMO patients received treatment for cardiovascular conditions.*** The number of non-HMO patients identified with cardiovascular conditions rose by 3.5 percent due to nearly a 10 percent increase in persons seeking treatment for lipoid metabolism problems (e.g., high cholesterol) and a 3.2 percent growth in patients with hypertension. Growth of cardiovascular diagnoses among HMO patients was not as dramatic. ***The percentages of patients with a diabetes diagnosis or an asthma diagnosis (just under 4 percent) was steady in both non-HMO and HMO patients.***

The most common major category of service for private non-HMO and HMO patients in 1999 as measured by percent of patients, percent of service volume, and percent of total payments was Evaluation and Management Services (E&M). These services are common because they are used in conjunction with all phases of care: preventive, diagnostic, and therapeutic. Mental health E&M utilization grew more rapidly than other types of E&M among non-HMO patients, but the percent of patients using these services declined in HMOs. In HMO patients, Ophthalmologic E&M utilization increased substantially, as measured by share of patients, services, and fee-for service spending, but improved data submissions explain a significant portion of this growth. Emergency room E&M utilization, which represents a subset of all ER care, increased for HMO patients; in non-HMO patients these services became less common but about 5 percent more costly. Among the other broad categories of service, significant percentages of patients receive Procedures and Imaging services. In general smaller percentages of HMO patients received these services than non-HMO patients, possibly because HMOs are currently not required to submit information on capitated primary care services.

Physicians specializing in radiology, internal medicine, general practice, and obstetrics/gynecology (OB/GYN) received the greatest shares of non-HMO payments. Radiology and OB/GYN payment shares rose by about 9 and 15 percent, respectively, from 1998 to 1999, while the other two specialties' shares fell. The largest shares of fee-for-service payments for HMO patients went to OB/GYN and to general surgery, whose share more than doubled due to data improvements. For both payers, pediatricians' payment shares declined from 1998 to 1999, in keeping with the reduction in standardized payment for infant and children services.

1. INTRODUCTION

Each year since 1996 the Maryland Health Care Commission (MHCC) presents a Practitioner Report that describes the use of insured practitioner services by residents and the associated payments by insurance companies and recipients for those services, as required by Health-General Article §19-1502(c)(7). In order to provide the Commission with data on fees and utilization patterns, insurance companies and health maintenance organizations (HMOs) meeting certain criteria[1] are required to submit information to the Commission under COMAR 10.25.06 on the health care practitioner services provided to Maryland residents. The Maryland Medical Care Database (MCDB) is created from these submissions.

For calendar year 1999 the Commission received usable data from 48 payers including all major health insurance companies.[2] This source is supplemented with Medicare claims information on the use of practitioner services by Medicare beneficiaries 65 years of age or older who have Medicare Part B coverage.[3]

Certain population groups are not represented in the analysis of this report. Those non-represented groups include:

- Maryland residents who have primary insurance through a private plan but (i) are 65 years or older or (ii) are insurees whose private plan is not required to submit data to the MHCC.
- Maryland residents enrolled in Medicare.
- Maryland residents who are enrolled in Medicaid.
- Maryland residents who are uninsured.

This year the Practitioner Report takes the form of a Chartbook that highlights more detailed information available at the MHCC web site.[4] **Chapter 1** presents an overview of the Chartbook and includes state population demographic characteristics, insurance coverage and physician supply. **Chapter 2** describes the usage patterns and payments for the patients of 24 private corporations that market traditional indemnity plans or preferred provider organization options.[5] **Chapter 3** focuses on usage patterns within private health maintenance organizations. Data from HMO fee-for-service operations are combined with specialty care practitioner services provided to HMO members under capitated arrangements. For 1999, data are available for all HMOs that operated in the state. It is not possible to measure the total reimbursement for these HMO services, since no data on payments for capitated services exist. Therefore payment data in this chapter is limited to the fee-for-service portion of HMO operations.

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[1] The company is licensed in the state of Maryland and collects more than $1 million in health insurance premiums.

[2] Nineteen small payers that together represent about 0.2 percent of premiums reported to MIA of the private insurance market received waivers from contributing to the 1999 MCDB.

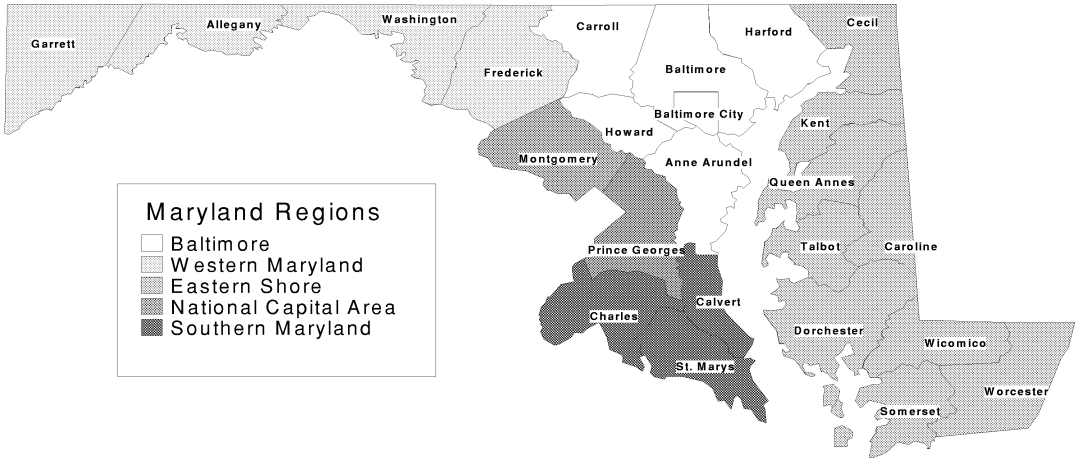
[3] The Commission is releasing a companion Chartbook on Medicare utilization titled, **Practitioner Utilization: Trends For Patients in Traditional Medicare, 1998-1999.** That Chartbook presents information on the utilization of residents over the age of 65 enrolled in traditional Medicare.

[4] www.MHCC.state.md.us/practitioner 99

[5] The companies participating in the 1999 analysis are identified in Appendix A.

Each chapter examines the changes that occurred from 1998 to 1999, overall and separately by age group (for the non-elderly) and by region of the state. Figure 1-1 indicates how the 24 counties of Maryland are divided into the five regions used in these analyses. Each payer-specific chapter includes a brief description of the demographic characteristics of the recipients of care, specifically the patients' age and gender distributions. These chapters examine the distribution of medical conditions across patients receiving practitioner services. Information on the types of practitioner services provided includes the likelihood that a patient received the service and the payment and service shares associated with each type of service. [6] The proportion of total practitioner payments distributed to the various medical specialties and other types of providers is also reported. Chapter 2 examines changes in spending for practitioner services both in aggregate and on a per capita basis, as well as payment per work relative value unit (RVUs)[7]. In Chapter 3, this spending analysis is limited (for reasons discussed previously) to changes in payment per work RVU, and the number of work RVUs per capita is used to examine changes in the use of resources. Additionally, Chapters 2 and 3 also take a preliminary look at the degree of concentration of private insurance companies in Maryland counties.

Figure 1-1: Maryland Regions



[6] Certain types of services are excluded from the analysis. For example, the analytic data used for this Chartbook does not provide information on: (1) encounters for non-Maryland residents who received health care in Maryland, (2) institutional services (hospital inpatient and outpatient, nursing homes, hospice care), (3) home health care services, (4) dental services, (5) durable medical equipment, and (6) non-covered services. These data only include services and payments through primary insurance coverage. Moreover, while the data are generally complete and of high quality, there are invalid or missing data for some data fields. Such missing values for age, region, type of service or physician specialty lead to slight differences across tables and figures in the number of recipients, services, and payments.

[7] Work relative value units (RVUs) are a measurement system that makes it possible to compare the resource intensities of different procedures. Specifically, the work RVU for a service reflects the relative amount of average time taken to perform the service, the difficulty of the work, and the level of training and expertise required to perform the work. For a more complete description of RVUs, see Maryland Health Care Commission, Practitioner Expenditures & Utilization: Experience from 1998, page 8, available at www.MHCC.state.md.us/database/exputil1998/_exputil.htm.

State Population Characteristics and Physician Supply

Summary information is presented on the characteristics of Maryland's under 65 population, the distribution of insurance coverage for the entire state, and the supply of physicians. See Table 1-1.

- The under 65 population of Maryland grew by 0.7 percent in 1999 to 4.6 million. More residents live in the National Capital Area and in the Baltimore regions of the state, though the population growth was greater in the other, less populated regions.

- Among the population under age 65, age distribution is consistent with the number of ages in each group, with adults 18-44 comprising just under half, followed by children, older adults 45-54, and newborns. Although this rank order is consistent across the regions, distributional differences exist. Southern Maryland has the largest proportion of children (31.2 percent), who tend to be the lowest users of health care services. At the same time Southern Maryland has a comparatively small percentage of residents age 45-64, who are heavy users of health services. By contrast the Eastern Shore has a comparatively high proportion of this group.

- The gender distribution of the population under age 65 is relatively equal among the state regions. Males constituted 49.6 percent of the state population, while females were slightly more at 50.4 percent. The use of health care services by females exceeds the use by males.

- In 1999, 87.8 percent of the state population had health insurance coverage. The proportion with coverage in each region ranged from 91.5 percent in Southern Maryland to 84.0 percent in the Eastern Shore. The total number of insured residents in Maryland grew by 2.1 percent from 1998 to 1999.

- Across the regions the percent change was the largest in Southern Maryland among the insured private non-HMO population (25.3 percent) reflecting a shift from HMO to non-HMO coverage. The NCA region, the Baltimore area, and the Eastern Shore region experienced smaller rates of positive growth at 3.3, 3.3, and 4.8 percent respectively. Only in the Western Maryland region did private non-HMO population decline, by 3.8 percent. The private HMO population declined by 1.6 percent in the state; most of this change was in Southern Maryland, where 21.2 percent of the population changed their type of coverage.

- Finally, the regions differ in supply of physicians. The relatively low numbers of physicians in Western Maryland, Eastern Shore, and especially Southern Maryland may well contribute to lower usage of practitioner services. Estimates of physician supply in Maryland's metropolitan areas are similar to those found in neighboring metropolitan areas of Philadelphia, New York, and Boston.[8]

[8] The Baltimore PMSA had 345 physicians per 100,000 population compared to 357 per 100,000 in the Philadelphia PMSA, 403 per 100,000 in the New York PMSA, and 397 per 100,000 in the Boston PMSA. The counts of physicians for these estimates are taken from AMA's 1998 Physician Masterfile as reported in the federal Health Resource Services Administration's February 2000 Area Resource File.

Table 1-1: Demographic and Insurance Characteristics and Trends, 1999

	Maryland Total	NCA	Baltimore Area	Western Maryland	Southern Maryland	Eastern Shore
1999 Population, Under Age 65	**4,574,680**	**1,472,370**	**2,149,480**	**365,000**	**259,340**	**328,490**
Percent change 1998-1999	0.7%	0.9%	0.2%	1.1%	2.1%	1.4%
Regional Distribution	100.0	32.2	47.0	8.0	5.7	7.2
Age Distribution within Regions						
Infants	1.6	1.6	1.6	1.5	1.5	1.4
1-17	27.1	26.0	27.1	27.8	31.2	27.9
18-44	46.8	48.7	46.4	45.2	45.1	43.8
45-64	24.6	23.7	25.0	25.5	22.2	26.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gender Distribution*						
Males	49.6	49.0	49.6	50.9	50.7	50.1
Females	50.4	51.0	50.4	49.1	49.1	49.9
Insurance Characteristics of the Population, 1999						
Percent with Insurance Coverage	87.8%	88.8%	87.7%	85.2%	91.5%	84.0%
Private non-HMO	33.2	35.7	30.8	33.2	49.0	26.5
Private HMO	32.0	34.9	31.8	28.5	25.2	30.4
Medicare, Traditional	10.9	8.9	11.5	13.7	8.3	14.6
Medicare+Choice (HMO)	1.7	1.2	2.3	0.6	0.7	1.8
Other (Medicaid, CHAMPUS)	10.0	8.1	11.4	9.2	8.3	10.7
Percent change 1998-1999:	2.1	3.1	1.2	1.2	4.6	2.3
Private non-HMO	4.2	3.3	3.3	-3.8	25.3	4.8
Private HMO	-1.6	1.4	-2.2	4.9	-21.2	-2.8
Medicare, Traditional	1.9	2.5	-0.5	5.6	7.2	7.5
Medicare+Choice (HMO)	-3.1	-0.5	6.3	-45.9	-25.5	-30.0
Physician Supply, 1997						
Total non-federal patient care physicians per 100,000 popn.	312	355	356	160	104	155

* Regional distributions are 1998 data.

Sources:
MHCC, *State Health Care Expenditures: Experience from 1999*, page 27.
Maryland Vital Statistics Annual Report, Table 2A, 1998 (published) and 1999 (forthcoming).
MHCC calculations based on U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, Area Resource File: February 1999 Release.

2. TRENDS WITHIN PRIVATE NON-HMO PATIENTS, 1998-1999

Patient Demographics

This section explores the demographic characteristics and changes from 1998 to 1999 of the privately insured non-HMO patients (or recipients) in Maryland using the MCDB. See Figures 2-1, 2-2, and 2-3.

- The number of Maryland patients covered by private non-HMOs reporting to MHCC increased overall by 0.5 percent from 1998 to 1999. This rate of growth is consistent with, but less than, the 4.2 percent growth reported in the preceding section.[1]

- Compared to 1998, the patients in the current MCDB are more likely to be children, to live in the NCA or in Western Maryland, and to be male.

- Numbers of patients who are infants and children have grown faster than their numbers in the state population. This development may suggest an improvement in access to care for children. The number of infants in the MCDB rose by 7.3 percent and children aged 1-17 increased by 5.3 percent compared to 1.7 percent growth for all children under 18 in Maryland.[2] In contrast the number of adults, 18-64 fell by a small amount (0.4 percent).

- The patterns found in the MCDB as a whole are not representative of any of the state's five regions. For example, the growth rates for numbers of patients are much higher in the NCA and for Western Maryland than average: 8.1 and 5.4 percent, respectively. In both regions, numbers of recipients rose in all age groups. In the NCA, increases ranged from 2.7 percent for adults 45-64 to 30.9 percent for infants, while in Western Maryland the numbers of recipients grew by smaller percentages. These increases were nearly offset by decreases in the number of patients in the Baltimore area.

- The number of patients who are male rose by 3.8 percent while the number of patients who are female fell by 1.5 percent. Although males continue to be a minority of patients (43.9 percent in 1999), the increase in the proportion of male patients indicates increased use of health care services by males despite the fact that males are historically less likely to seek care than are females (data not shown). The shift to an increased proportion of males occurred in every region.

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[1] See Table 1-1 of this report that presents MHCC's estimates of health care insurance for all Maryland residents. Counts of patients presented in this and in subsequent chapters are based on individuals with a service in the Medical Care Data Base. www.MHCC.state.md.us/database/_database.

[2] *Maryland Vital Statistics Annual Report*, Table 2A, 1998 and 1999 (forthcoming)

Figure 2-1: Percent Change in Numbers of Patients by Age Category, Private Non-HMO, 1998-1999

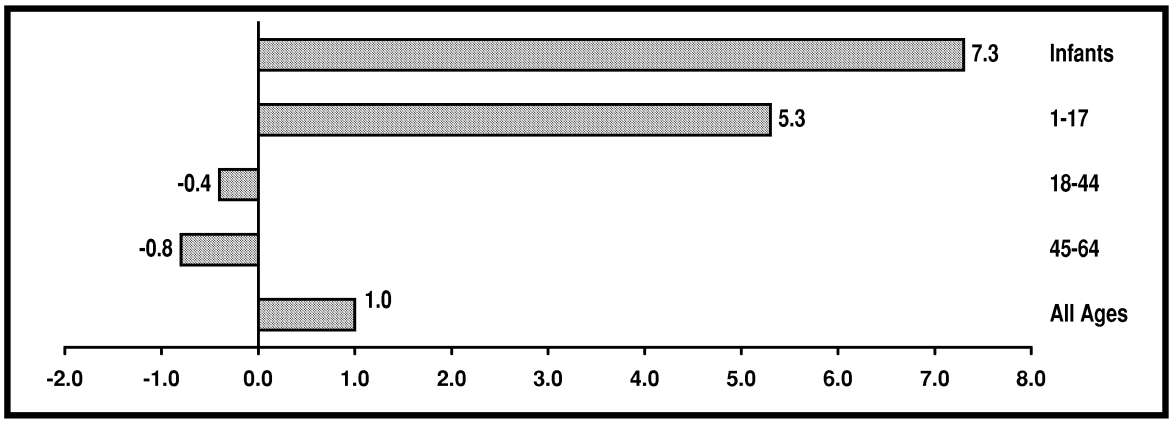


Figure 2-2: Percent Change in Numbers of Patients Overall and by Region, Private Non-HMO, 1998-1999

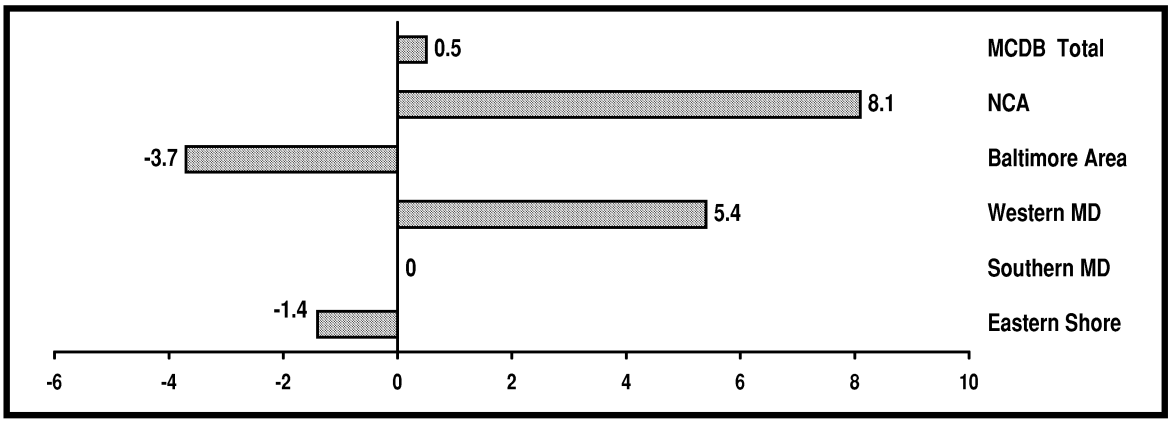
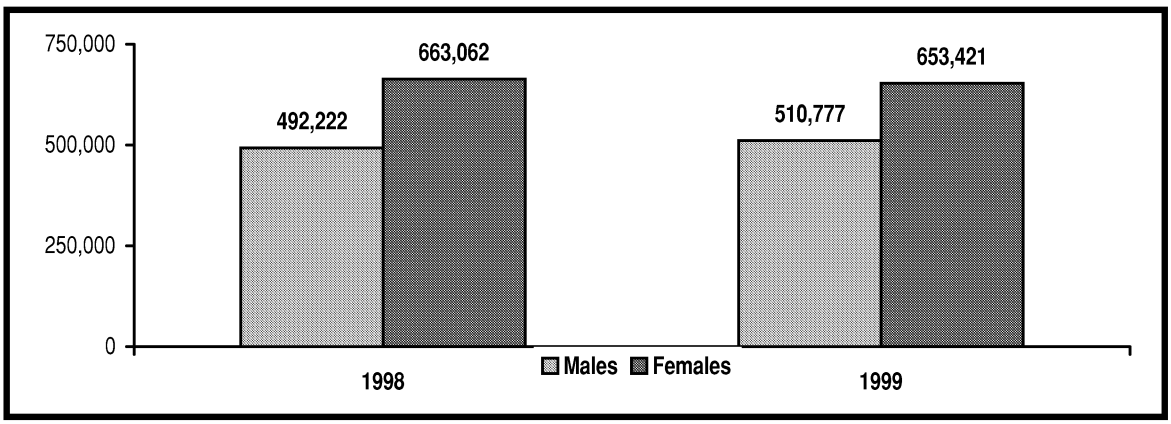


Figure 2-3: Patient Population by Gender, Private Non-HMO, 1998-1999



Non-HMO Patient Concentration

This section discusses the proportion of privately insured non-HMO patients in each county/jurisdiction covered by 24 corporations submitting data to MHCC in 1999. These corporations represent 98 percent of premiums paid in 1999. See Table 2-1 and Figure 2-4.

- The four largest corporations cover 80.4 percent of the non-HMO patients in the MCDB (data not shown).
- Two corporations cover 50 percent or more of the patients in Montgomery and Wicomico counties, and a single insurer is responsible for the primary insurance coverage for the remaining 22 jurisdictions.

Table 2-1: Number of Insurers That Provide Primary Coverage for at Least 50 Percent, 67 Percent, and 80 Percent of Non-HMO Patients in the County/Jurisdiction, Private Non-HMO, 1999

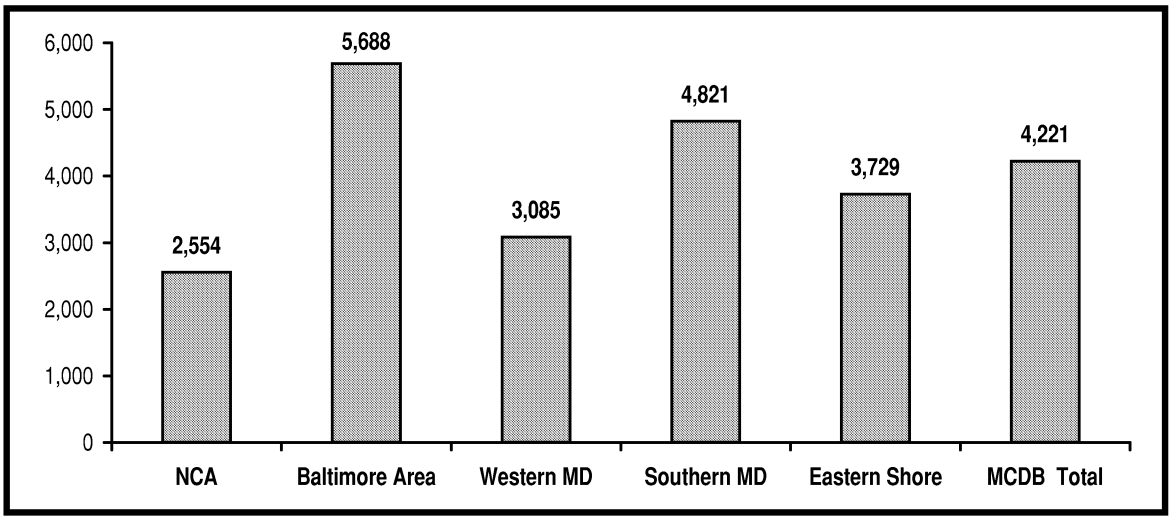
County/Jurisdiction	Number of Insurance Corporations[a] By Percent of Patients Covered			Herfindahl-Hirschmann Index (HHI)
	50%	67%	80%	
Allegany	1	2	3	3,862
Anne Arundel	1	1	3	4,965
Baltimore	1	1	2	6,212
Baltimore City	1	1	1	6,635
Calvert	1	1	4	4,629
Caroline	1	2	4	3,994
Carroll	1	1	3	5,000
Cecil	1	2	4	4,071
Charles	1	2	4	4,374
Dorchester	1	1	4	4,267
Frederick	1	3	5	2,812
Garrett	1	1	2	5,445
Harford	1	2	3	6,227
Howard	1	2	4	4,218
Kent	1	1	3	4,865
Montgomery	2	4	5	2,291
Prince George's	1	3	5	3,102
Queen Anne's	1	2	3	4,544
Saint Mary's	1	1	2	5,565
Somerset	1	2	4	3,339
Talbot	1	2	5	3,990
Washington	1	2	4	3,025
Wicomico	2	3	4	2,850
Worcester	1	2	4	3,631

[a] Does not include out-of-state firms that may sell to Maryland residents or insurers who only sell in the Federal market.

Figure 2-4 provides a visual picture of the patient coverage concentration measured by the Herfindahl-Hirschmann Index (HHI).[3] HHI is used here as a way of measuring the choice of health insurance coverage among firms for segments of the insurance industry. The development of a more appropriate index, that would describe concentration on the supply side of this industry, would require a more formal and complicated model of industry behavior or insurance purchasing decisions. In very competitive markets the HHI is small. Where a single firm is the only supplier of the good or service, the HHI = 10,000.

The data indicate that the HHI for all private non-HMO patients in the MCDB is 4,221. The concentration in the Baltimore (5,688) and Southern Maryland (4,821) areas exceeds the MCDB average. In contrast, the NCA (2,554), Western Maryland (3,085), and Eastern Shore (3,729) regions exhibit less concentration. It is important to note that these estimates do not include patients covered by HMOs.

Figure 2-4: Measures of Private Non-HMO Patient Concentration by Region, 1999



[3] The HHI is calculated as the sum of the squares of the percentage share of each corporation in a market. For example, if there are four sellers in a market area with shares of 40 percent, 30 percent, 20 percent, and 10 percent of patients respectively, the HHI=$40^2 + 30^2 + 20^2 + 10^2 = 1600 + 900 + 400 + 100 = 3000$.

Spending on Practitioner Services

This section examines changes in total spending for practitioner services from 1998 to 1999 for privately insured non-HMO patients in the MCDB. See Figures 2-5, 2-6, 2-7, and 2-8.

- Total practitioner payments for non-HMO patients in 1999 were $955 million, up 0.7 percent from the 1998 total (Figure 2-5). This is similar to the growth in patient volume.

- The largest payments by patient residence were in the Baltimore ($468 million) and NCA ($306 million) regions. Payments in the three less populated regions were substantially less, ranging from $51 million to $76 million.

- Payments for patients in Western Maryland exhibited the largest decline, nearly 10 percent. The NCA and Eastern Shore regions also showed decreases in spending. In contrast, the Baltimore and Southern Maryland areas had increases in payments of 4.3 and 7.9 percent, respectively.

Figure 2-5: Trends in Practitioner Spending ($ millions) by Region of Patient Residence, Private Non-HMO, 1998-1999

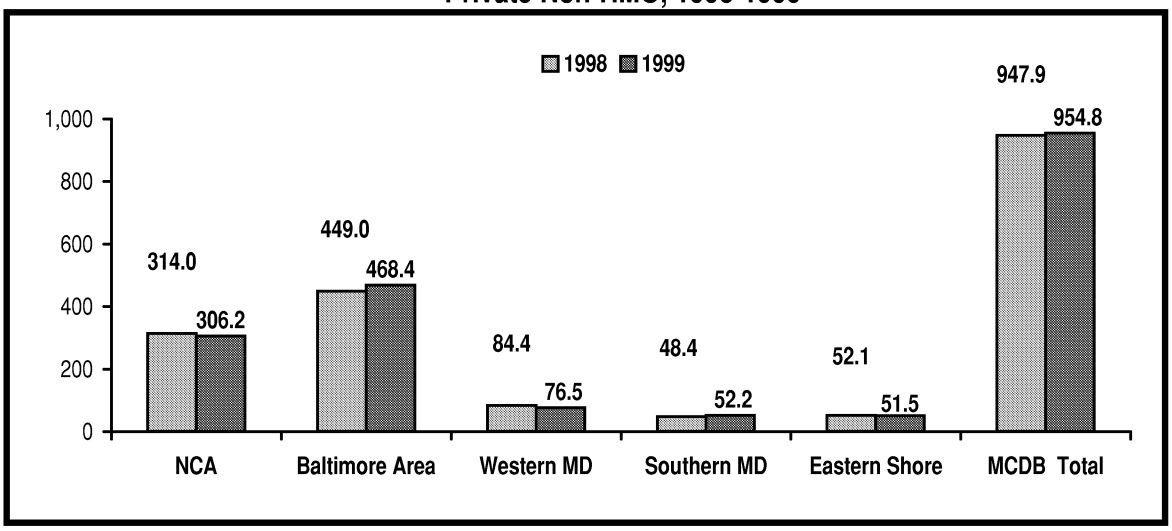
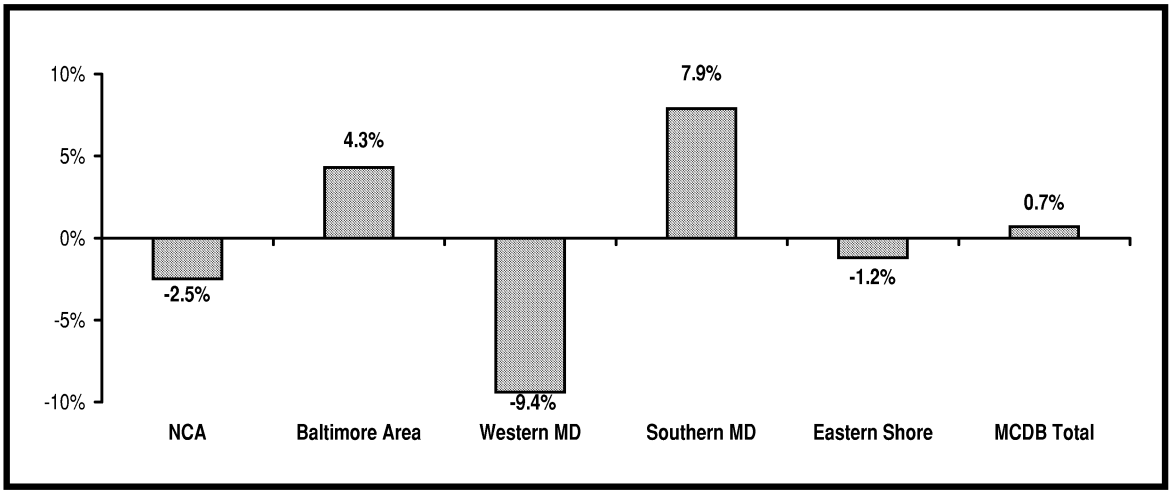


Figure 2-6: Percent Change in Practitioner Spending by Region of Patient Residence, Private Non-HMO, 1998-1999



- For privately insured patients , the largest growth in total payments, 2.8 percent, occurred for adults age 45-64, even though the patient volume in this age category declined by 0.8 percent.[4] Expenditures for younger adults also increased although there was a slight decline in the number of these patients. These changes imply increased expenditures for at least some types of adult patients.

- Expenditures on practitioner services provided to infants and children grew by far less than their corresponding increase in patient volume from 1998 to 1999. This was especially true for infants where a 0.1% increase in payments accompanied the 7.3 percent in number of infants treated. Consequently, expenditures for some types of infants declined from 1998 to 1999. Based on analysis of median expenditures per patient (see next section), it appears that reductions in spending on the most costly infants (and children) are probably responsible for this discrepancy.

Figure 2-7: Trends in Practitioner Spending ($ millions) by Age Category, Private Non-HMO, 1998-1999[4]

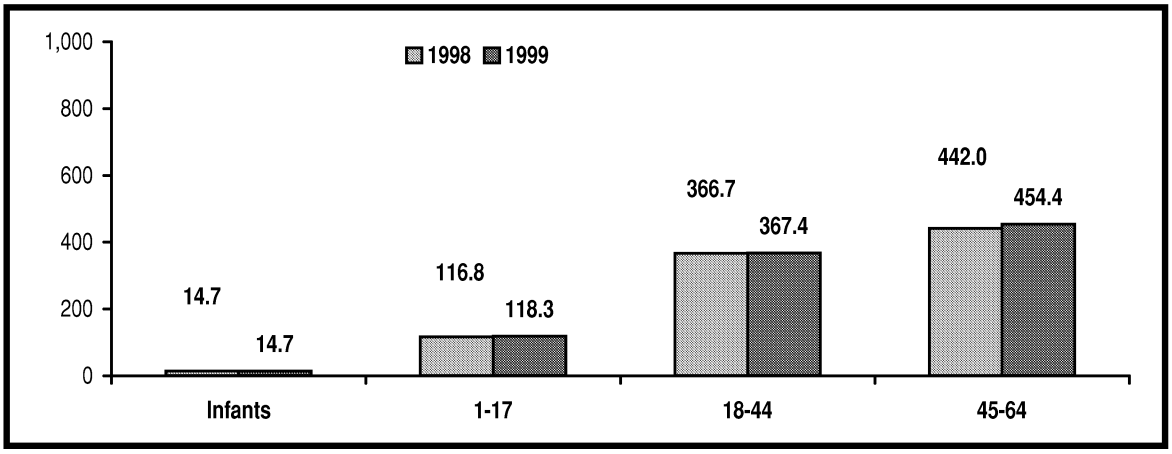
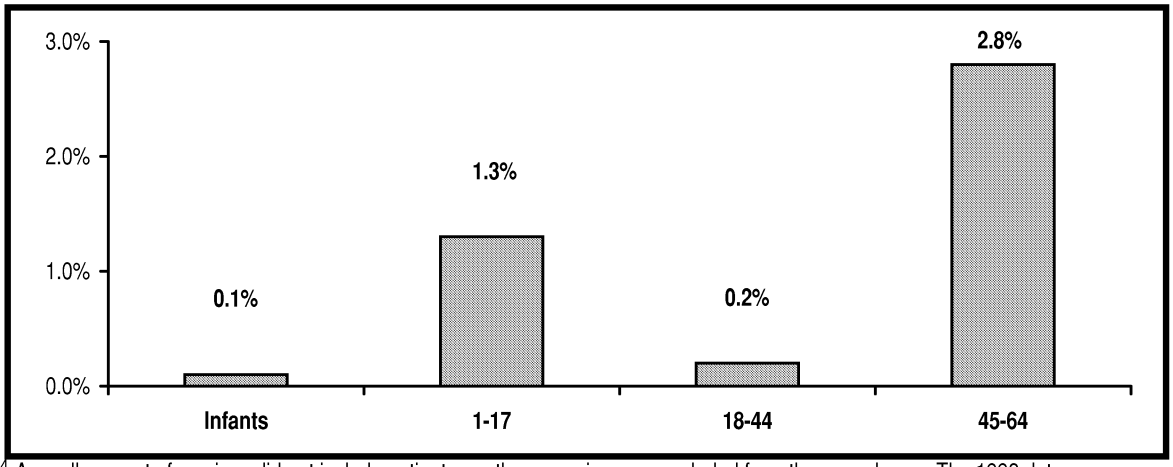


Figure 2-8: Percent Change in Practitioner Spending by Age Category, Private Non-HMO, 1998-1999[4]



[4] A small percent of services did not include patient age, these services are excluded from these analyses. The 1998 data contained a higher proportion of missing values than 1999, showing a lower than expected dollar amount and higher than expected percent change from 1999.

Annual Expenditure per Patient and Payment per Unit of Care

This section explores how the annual expenditure for covered practitioner services – including both insurer and patient payments – changed between 1998 and 1999. Table 2-2 presents median annual expenditure per patient and mean payment per work Relative Value Unit (RVU) categorized by age group and by region of patient residence. Mean payment per work RVU is used to examine differences in payment per standardized unit of care. We expected payments per RVU to be relatively consistent for all ages within a given region, but significant differences exist. These differences may be attributable to payer/payment system practices and to differences in the types of practitioners that provide care to each age group.

- The median annual practitioner services expenditure per patient with private non-HMO insurance rose from $257 in 1998 to $287 in 1999, an increase of 11.7 percent.

- For patients across all regions, the highest payment-per-patient medians in 1999 were for infants ($484) and older, middle-aged adults 45-64 ($469). The median expenditure on children ($186) was less than half that for infants and older adults. This reflects the fact that children are less afflicted with expensive illnesses and injuries. The 1998-1999 increase in median payment rose steadily with the age of the patient, ranging from 3.2 percent for infants to 16.1 percent for older adults.

- For three out of four age groups the NCA had the highest payment-per-patient medians in 1999; NCA ranked second to Southern Maryland for infants. Western Maryland generally had the lowest median payments, closely followed by the Eastern Shore.

- Between 1998 and 1999 the median annual expenditure per patient rose for all age categories in every region except Western Maryland, where these payments declined (infants, children) or increased just slightly (younger and older adults). Within each region, as for the MCDB as a whole, expenditures increase with patient age. The sole exception is Southern Maryland where the increase in median payment was higher for infants than for children. This region exhibited the largest annual payment increases for all age categories excluding children.

- In 1999 the actual mean payment per work RVU differs by age group and by region. Adults 45-64 are associated with the highest mean payment per work RVU in every region, with amounts ranging from $69 in the Baltimore region to $81 in the NCA. In all regions, services provided to infants and children had lower mean reimbursements than adult services, with child services lowest in 3 regions and infant services lowest in 2. This suggests that pediatricians continue to receive lower reimbursement per standardized unit of work compared to other types of physicians.

- Overall, the mean payment per work RVU fell by 1.8 percent between 1998 and 1999. Excluding older adults in Southern Maryland, the mean payment fell for every combination of age category and region in the state. The reductions were greater for services provided to younger patients; reductions averaged 6.5 percent for infant care, 5.3 percent for children, 1.6 percent for younger adults, and 1.2 percent for older adults. Care for infants was associated with the largest reductions in mean payment in all regions.

- Mean payment per work RVU is considerably higher in the NCA than in any other region. It tends to be lower in the Baltimore region than elsewhere. This may be due to the greater availability of non-physician practitioners in the Baltimore region.

Table 2-2: Median Payment per Patient and Mean Payment per Work RVU by Age Category and Region, Private Non-HMO, 1998-1999

Age and Region	Median Payment per Patient			Mean Payment per Work RVU		
	1998	1999	% change	1998	1999	% change
All Ages and Regions	**$257**	**$287**	**11.7%**	**$72**	**$71**	**- 1.8%**
Infants	**469**	**484**	**3.2**	**71**	**66**	**- 6.5**
NCA	510	526	3.1	77	73	- 5.4
Baltimore	456	469	2.9	67	63	- 5.5
Western Maryland	463	440	-5.0	73	65	-10.1
Southern Maryland	480	557	16.0	67	61	- 9.5
Eastern Shore	447	469	4.9	68	60	-12.2
Children 1-17	**171**	**186**	**8.8**	**67**	**64**	**- 5.3**
NCA	192	212	10.4	74	71	- 4.6
Baltimore	168	182	8.3	64	60	- 5.4
Western Maryland	157	154	- 1.9	69	65	- 5.4
Southern Maryland	190	199	4.7	65	61	- 5.3
Eastern Shore	149	158	6.0	67	62	- 6.7
Adults 18-44	**235**	**265**	**12.8**	**71**	**70**	**- 1.6**
NCA	267	299	12.0	77	77	- 0.7
Baltimore	232	265	14.2	67	66	- 2.0
Western Maryland	215	217	0.9	74	72	- 2.4
Southern Maryland	220	257	16.8	71	70	- 0.6
Eastern Shore	198	210	6.1	72	70	- 2.0
Adults 45-64	**404**	**469**	**16.1**	**75**	**74**	**- 1.2**
NCA	469	547	16.6	83	81	- 1.6
Baltimore	411	477	16.1	70	69	- 0.9
Western Maryland	344	354	2.9	77	76	- 1.3
Southern Maryland	330	423	28.2	73	74	0.6
Eastern Shore	326	360	10.4	74	74	- 0.6

Medical Conditions for Which Patients Sought Treatment

This section discusses the trend in medical conditions and external factors (ICD-9 Diagnosis Codes) associated with care received from practitioners. The unique diagnosis codes[5] for all practitioner services (excluding radiology and lab) received by a patient were classified using Expanded Diagnosis Clusters (EDCs)[6]. The most common EDCs and all summary Major Expanded Diagnosis Clusters (MEDCs), which appear in boldface, are shown in Table 2-3.

- Between 1998 and 1999, the number non-HMO patients in the MCDB with valid diagnostic information increased 2.1 percent.[7]

- The MEDCs with greater than 2.1 percent growth in number of patients include Examination and screening; Ear, nose, throat problems (ENT); Cardiovascular conditions; Pulmonary conditions; Ophthalmologic disorders; Psychosocial problems; Infectious diseases; and Blood diseases.

- In 1999, 45.7 percent of the patients received care for conditions or concerns that required Examination and screening (including surgical aftercare). The growth in recipients was 13.5 percent for this MEDC. The data suggest that private non-HMO members are increasingly likely to obtain preventive services or treatment for conditions before they become severe.

- The number of recipients with ENT problems increased by 3.9 percent. Primarily patients seeking treatment for acute upper respiratory tract infections and sinusitis drove this increase.

- The number of patients with Cardiovascular conditions rose by 3.5 percent due to a nearly 10 percent increase in persons seeking treatment for disorders of lipoid metabolism, i.e. high cholesterol and a 3.2 percent growth in patients with hypertension.

- Among patients receiving care for Pulmonary conditions the predominant cause was an acute lower respiratory tract infection. The number of patients with this type of diagnosis rose by 8.5 percent from 1998 to 1999.

- Patients diagnosed with depression, anxiety or neuroses increased by 4.8 percent and account for the overall growth in patients with Psychosocial problems.

- In contrast to the MEDCs with increased numbers of patients, Orthopedic problems, Pregnancy and female reproductive related conditions, and, especially, General complaints had relatively large reductions in numbers of recipients of care, despite the overall increase in numbers of recipients for whom diagnostic data were available.

- Trends in specific conditions of public policy interest are documented here and in the full table available at our website. For example, among Allergic reactions, the number of recipients with asthma and Lyme disease (data not shown here) rose by 3.2 and 67.7 percent, respectively. Although Lyme disease affected just 0.3 percent of the patients in 1999, it is of concern because it is a multi-systemic condition and can result in neurological and psychiatric symptoms. Maryland defines the southern border of areas with the highest incidence of Lyme disease in the U.S.

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[5] Each practitioner service contributed up to three different ICD-9 diagnosis codes.

[6] Christopher B. Forrest, MD, PhD, Health Services Research and Development Center, Johns Hopkins School of Public Health.

[7] This percent differs from the previously reported patient growth of 0.8 percent, because patients who received only radiology and laboratory tests, or who lacked valid diagnosis information, were excluded from this analysis.

Table 2-3: Trends in Numbers and Proportions of Recipients In Major Expanded Diagnosis Clusters (MEDCs) and Selected Expanded Diagnosis Clusters (EDCs), Private Non-HMO, 1998-1999

Expanded Diagnosis Clusters[5,6]	Number of Recipients		Percent of All Recipients	
	1999	Change 1998-99	1998	1999
MCDB Total	**1,075,945**	**2.1%**	**100.0%**	**100.0%**
Examination and screening	491,307	13.5	41.1	45.7
Ear, nose, throat problems	356,897	3.9	32.6	33.2
Otitis media	94,544	0.3	8.9	8.8
Sinusitis	108,486	3.6	9.9	10.1
Acute upper respiratory tract infection	219,597	4.4	20.0	20.4
Orthopedic problems	250,808	-2.0	23.3	24.3
Acute sprains and strains	66,193	-3.0	6.5	6.2
Low back pain	85,120	-1.1	8.2	7.9
Bursitis, synovitis, tenosynovitis	59,020	-2.3	5.7	5.5
Skin conditions	246,569	-0.4	23.5	22.9
Dermatitis and eczema	65,205	-1.8	6.3	6.1
Common surgical conditions	216,384	-1.4	20.8	20.1
Benign and unspecified neoplasm	96,758	0.2	9.2	9.0
Abdominal pain	60,913	0.8	5.7	5.7
Cardiovascular conditions	195,382	3.5	17.9	18.2
Hypertension	112,599	3.2	10.4	10.5
Disorders of lipoid metabolism	83,035	9.9	7.2	7.7
Pregnancy and female reproductive related conditions	169,231	-3.6	16.7	15.7
Pulmonary conditions	128,344	4.9	11.6	11.9
Acute lower respiratory tract infection	85,999	8.5	7.5	8.0
Allergic reactions	122,870	1.6	11.5	11.4
Asthma	40,827	3.2	3.8	3.8
Allergic rhinitis	82,104	1.3	7.7	7.6
General complaints	120,911	-8.1	12.5	11.2
Ophthalmologic disorders	114,013	3.4	10.5	10.6
Gastrointestinal conditions	111,518	1.1	10.5	10.4
Psychosocial problems	106,607	3.9	9.7	9.9
Depression, anxiety, neuroses	72,642	4.8	6.6	6.8
Neurologic conditions	103,051	-0.7	9.8	9.6
Urinary and kidney conditions	101,276	-2.0	9.8	9.4
Rheumatologic conditions	101,038	2.1	9.4	9.4
Musculoskeletal signs and symptoms	82,598	3.8	7.6	7.7
Endocrinologic/metabolic conditions	84,011	1.5	7.9	7.8
Diabetes mellitus	37,031	1.1	3.5	3.4
Infectious diseases	60,554	5.0	5.5	5.6
Facial and skin reconstruction	32,247	-7.7	3.3	3
Cancer	26,274	1.8	2.5	2.4
Blood diseases	24,574	3.2	2.3	2.3
Disorders of the mouth	11,333	-0.5	1.1	1.1
Poisoning	7,848	-6.9	0.8	0.7
Developmental and genetic disorders	2,753	-4.2	0.3	0.3

Common and Most Costly Services Received

This section explores trends in the use of specific types of services between 1998 and 1999. Table 2-4 documents (a) the proportions of private non-HMO patients, total services, and total payments that are accounted for by each BETOS service category and (b) trends over these two years.

- The most common major BETOS category for private non-HMO patients in 1999 as measured by percent of recipients, percent of service volume, and percent of total payments was the Evaluation and Management Services (E&M) category. These services are common because they are used in conjunction with all phases of care: preventive, diagnostic, and therapeutic.

- The number of patients who received E&M services rose by 2.2 percent in 1999, which is nearly three times the growth in the number of non-HMO patients (0.5 percent, reported under Patient Demographics in this chapter). Nearly all E&M recipients obtained their services in an office setting; substantial proportions also obtained E&M services in emergency rooms (12.5 percent), for ophthalmology (7.2 percent) or other specialty care (15.8 percent), and through consultations (17.0 percent).

- From 1998 to 1999 the number of recipients of E&M services increased, but the actual number of E&M services fell by 1.1 percent. In contrast, total payments for E&M services rose by 5.7 percent.

- Nearly every type of E&M exhibited a decline in service volume in 1999; a notable exception was E&M services for mental health, which increased by 24.0 percent. This increase may be due to more complete data on mental health services in the MCDB. Except for services provided in nursing/patient homes, payments for all types of E&M service increased in 1999.

- The number of recipients of Procedures rose by 5.3 percent in 1999 when 40.7 percent of patients had at least one procedure. Patients who received anesthesia or had ambulatory or minor procedures performed accounted for most of this growth in patient volume. In contrast to patient volume, payments for procedures grew by only 0.7 percent in 1999. Increases in expenditures for anesthesia, eye procedures, endoscopy, and ambulatory and minor procedures were substantially offset by reductions in payments for major cardiovascular, oncology, and other major procedures.

- The 2.0 percent growth in recipients who obtained Imaging services in 1999 is primarily explained by increased numbers of patients receiving advanced imaging (CAT and MRI). The growth in payments for imaging, 5.5 percent, well exceeds the growth in patients because advanced imaging technologies are comparatively expensive services.

- The number of Tests provided in 1999 grew by far more (13.8 percent) than the number of patients receiving those tests (1.0 percent). The result was an increase in payments for tests of 8.3 percent.

Table 2-4: Percent Distribution of Recipients, Services, and Payments, and Trends by Service Category, Private Non-HMO, 1998-1999

BETOS[8] Category	Share of Recipients 1999	Change in Number of Recipients	Percent of Services 1999	Change in Number of Services	Share of Total Payments 1999	Change in Total Payments
Evaluation & Management Services	**89.9%**	**2.2%**	**36.2%**	**-1.1%**	**38.7%**	**5.7%**
In Office	84.1	3.0	24.4	-3.1	20.5	2.8
In Hospital	3.7	-6.5	1.5	-7.3	2.6	0.8
In Emergency Room	12.5	-2.6	1.2	-9.0	2.1	5.1
At Home & Nursing Home	0.2	-15.1	0.1	-14.4	0.1	-7.5
For Mental Health	6.0	13.2	4.1	24.0	6.3	22.8
For Ophthalmology	7.2	9.3	0.9	4.5	0.9	9.9
For Other Specialty Care	15.8	0.2	2.2	-2.9	2.6	6.5
For Consultation (requested)	17.0	-2.6	1.9	-7.1	3.8	0.2
Procedures	**40.7**	**5.3**	**21.2**	**1.5**	**34.9**	**0.7**
Ambulatory and Minor Procedures	30.9	5.0	17.8	1.6	13.6	1.8
Anesthesia[9]	9.9	9.8	1.3	10.0	3.5	7.0
Major Cardiovascular Procedures	0.9	-0.8	0.2	-8.2	1.7	-5.6
Major Orthopedic Procedures	0.7	1.9	0.1	2.0	1.5	3.4
Major Procedures Others	3.4	-2.0	0.4	-2.6	7.0	-4.3
Eye Procedures	0.6	4.1	0.1	7.3	1.2	10.6
Oncology	0.3	-6.8	0.5	-12.4	1.0	-9.6
Endoscopy	7.2	4.4	0.9	2.7	5.4	3.0
Dialysis	0.1	-8.8	0.1	-20.3	0.2	-19.2
Imaging	**38.6**	**2.0**	**8.1**	**-0.3**	**12.3**	**5.5**
Standard Imaging	32.4	1.4	5.1	-2.2	4.3	2.2
Advanced Imaging: CAT & MRI	7.6	9.9	1.0	8.5	4.4	11.5
Ultrasound	11.4	2.2	1.8	1.1	3.2	2.4
Imaging for Procedures	1.0	5.5	0.2	-2.4	0.4	6.7
Tests	**59.4**	**1.0**	**31.2**	**13.8**	**9.9**	**8.3**
Standard Tests	55.1	1.4	28.2	16.2	7.0	11.2
Electrocardiograms, Stress Tests, EKG Monitoring	13.8	-0.8	1.7	-4.8	1.3	-1.7
Other Tests	8.1	30.7	1.3	-4.0	1.5	4.6
Other (DME, Provider Administered Drugs, Other Services)	**10.2**	**14.0**	**2.1**	**6.2**	**3.7**	**15.5**

[8] Berenson-Eggers Type of Service (BETOS) CPT-4/HCPCS procedure code system, Health Care Financing Administration, available at http://www.hcfa.gov/stats/BETOS/betos.htm. Services that did not contain procedure codes recognized in the BETOS classification have been deleted.

[9] The MHCC believes that the level and growth in anesthesia services may be underestimated because some payers allow anesthesiologists to use the surgical code and a modifier when billing for service; if the payer does not supply the modifier, the service is identified as surgery rather than anesthesia.

Trends in Payments to Different Practitioner Specialties

This section examines the proportion of payments received by the different categories of physicians and other practitioners who obtained at least 1 percent of total practitioner payments in 1999. See Table 2-5.

- Multispecialty groups experienced the largest absolute change in payment share (+ 2.8 percent). Significant growth occurred in this category due to continuing consolidation in the physician sectors. A portion of this growth is also attributable to better payer coding of this category.[10]

- Among physicians the largest payment shares in 1999 for identified specialties went to Radiology (6.3 percent), Internal Medicine (5.8 percent), General Practice (5.7 percent), and Obstetrics-Gynecology (5.6 percent). These were also the "top 4" identified specialties in 1998.

- The largest relative (percentage) gains in share of total practitioner payments occurred for Clinical Social Workers (51.5 percent), physicians specializing in Anesthesiology (47.2 percent), Gastroenterology (43.6 percent), and Ophthalmology (26.3 percent), and Psychologists (24.8 percent). These changes are consistent with changes in the proportions of patients seeking care for Psychosocial problems, ophthalmologic disorders, and screenings (e.g., colonoscopy), as well as increased payments for ophthalmologic and mental health E&M, anesthesia, and endoscopy observed earlier.

- The largest relative (percentage) reductions in payment share occurred for Physical Therapists, Chiropractors, and physicians who specialize in Family Practice, General Practice, and Pathology. The decline in payments to physical therapists and chiropractors was especially significant in the Baltimore area. These providers may have experienced reduced payment shares because of the growing use of anti-inflammatory and pain-killing drugs. The payment share reductions for family and general practice physicians may reflect the substantial reduction in the proportion of patients seeking care for General complaints (see Table 2-3).

[10] Many payers improved practitioner specialty coding for the 1999 submission. Some of the increases for rapidly growing specialties are due to improved coding as are some of the decreases for specialty categories experiencing declines.

Table 2-5: Trends in Share of Total Practitioner Payments by Practitioner Specialty, Private Non-HMO, 1998-1999[11]

Practitioner Specialties	Specialty's Share of Total Payments		Difference 1998-1999	Percent Change in Payment Share 1998-1999
	1998	1999		
Physicians:				
Multi-Specialty Medical Practice[12] or Freestanding Clinic	5.6%	8.4%	2.8%	50.0%
Radiology	5.8	6.3	0.5	9.3
Internal Medicine	6.2	5.8	0.0	-6.6
General Practice	6.6	5.7	-0.5	-13.9
Obstetrics/Gynecology	4.9	5.6	-1.0	15.4
Pediatrics	4.1	3.9	-1.0	-4.3
Anesthesiology	2.5	3.7	-0.4	47.2
Orthopedic Surgery	2.7	2.9	0.4	7.4
Family Practice	3.5	2.9	-0.2	-17.1
Cardiology	2.3	2.6	-0.9	13.5
General Surgery	1.8	2.2	-0.1	17.3
Ophthalmology	1.4	1.8	0.4	26.3
Emergency Medicine	1.5	1.7	0.2	9.9
Dermatology	1.7	1.7	0.0	2.2
Psychiatry	1.4	1.6	0.2	12.8
Gastroenterology	1.1	1.5	0.4	43.6
Pathology	1.8	1.5	-0.3	-15.8
Otology/Laryngo/Rhino/Otolaryngology	1.1	1.3	0.2	13.7
Oncology	1.3	1.2	-0.1	-10.5
Urology	0.9	1.0	0.1	7.0
Nonphysician Health Care Professionals and Other Providers:				
Chiropractor	2.7	2.2	-0.5	-18.0
Physical Therapist	2.5	1.8	-0.7	-27.3
Psychologist	1.4	1.7	0.3	24.8
Clinical Social Worker	0.8	1.1	0.3	51.5
Podiatrist	1.1	1.1	0.0	0.2
All Other Specialties	26.8	25.2	-1.6	6.0
Total Payments to All Specialties	**$947,863,825**	**$954,812,746**	**0.7**	

[11] Table 2-5 excludes three categories: miscellaneous physician specialties (public health and industrial medicine); physicians without an identified specialty; and practitioner specialty unknown. Together these accounted for 14.9 percent of total payments in 1999. The percent change in payment share cannot be calculated from the data in this table because the 1998 and 1999 specialty shares presented in the table have been rounded.

[12] Multi-specialty medical practice is a new category added in 1999.

3. TRENDS WITHIN PRIVATE HMO PATIENTS, 1998-1999

Patient Demographics

This section describes the demographic characteristics and changes from 1998 to 1999 of the non-elderly privately insured HMO patients in the MCDB. See Figures 3-1, 3-2, and 3-3.

- The number of covered lives insured by private HMOs in Maryland declined by 1.6 percent between 1998 and 1999.[1] Specifically, the number of persons enrolled in private HMOs fell by an estimated 26,930 persons between 1998 and 1999.

- However in the MCDB, the number of private HMO patients[2] under age 65 rose by 27.2 percent from 1998 to 1999. Increased quantity and higher quality of data submitted by HMOs reporting to MHCC account for these differences. Aetna U.S. Healthcare, CIGNA of the Mid-Atlantic and Kaiser of the Mid-Atlantic made particularly significant improvements in their data submissions.

- The largest growth in private HMO patients occurred in NCA where the total number of patients rose by 37.2 percent, compared to the overall average of 27.2 percent. The smallest growth, 9.9 percent, occurred on the Eastern Shore.

- The percentage increase for infants and children in the MCDB as a whole was higher than for the adult groups. The increase in the proportions of patients who are infants and children in 1999 suggests an improvement in access to care for children.

- On a regional basis both the NCA and Eastern Shore exhibited larger relative increases for infants and children. However in Western and Southern Maryland regions, the pattern differed with adults 45-64 showing the largest relative increase (data not shown).

- The number of male patients grew by 30.2 percent, compared to a 25.2 percent increase in female patients, which increased the proportion of patients who are male to 41.3 percent in 1999. Historically, males have been less likely to obtain medical care, but their increased patient share implies they are improving their access.

- While the rates of growth in male patients were higher in every region compared to the growth in female patients, the relative increase in male patients was especially high in the NCA (44.4 percent).

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[1] See Table 1-1 of this report that presents MHCC's estimates of health care insurance for all Maryland residents. Estimates of covered lives presented in the SHEA report reflect health care insurance for all Maryland residents. Counts of patients presented in this chapter are based on individuals with a service in the Medical Care Data Base. www.MHCC.state.md.us/database/_database.

[2] Number of covered lives generally exceeds the number of patients because not all members use services.

Figure 3-1: Percent Change in Numbers of Patients Overall and by Region, Private HMO, 1998-1999

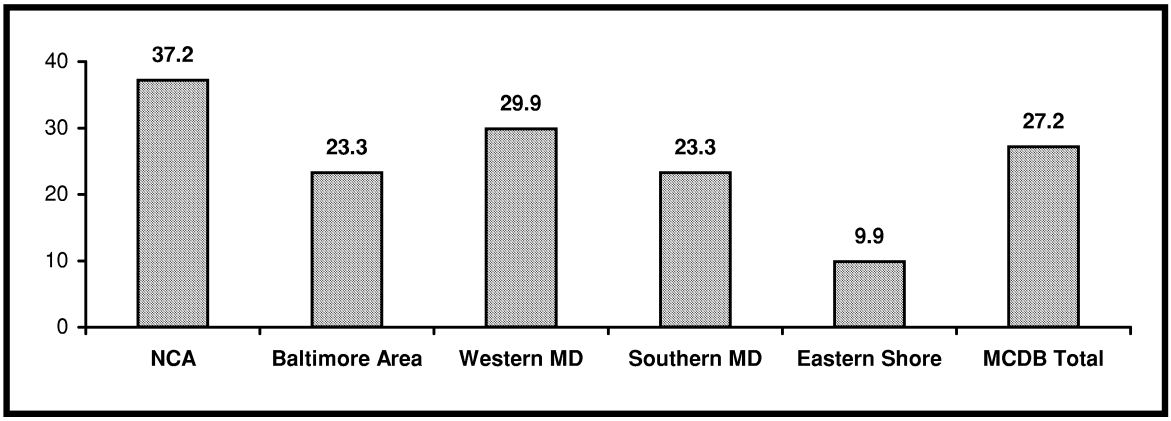


Figure 3-2: Percent Change in Numbers of Patients by Age Category, Private HMO, 1998-1999

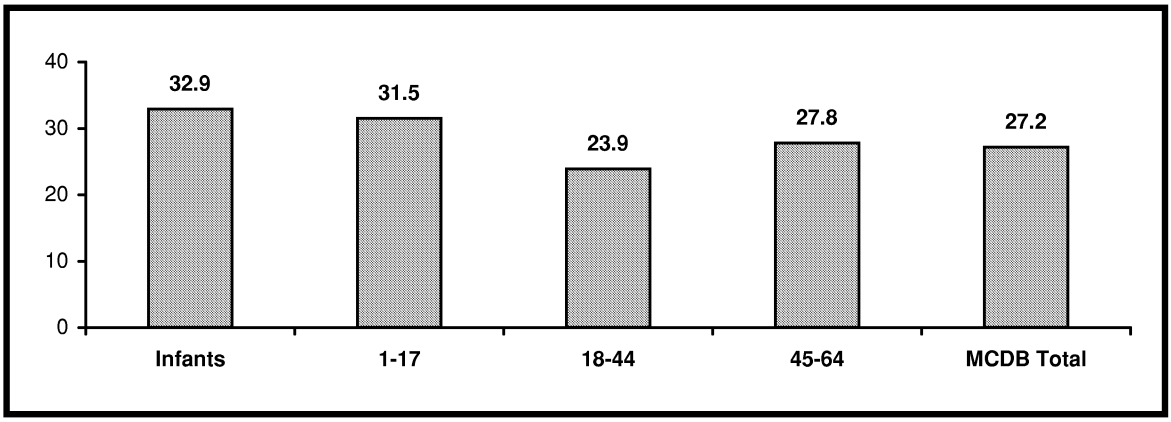
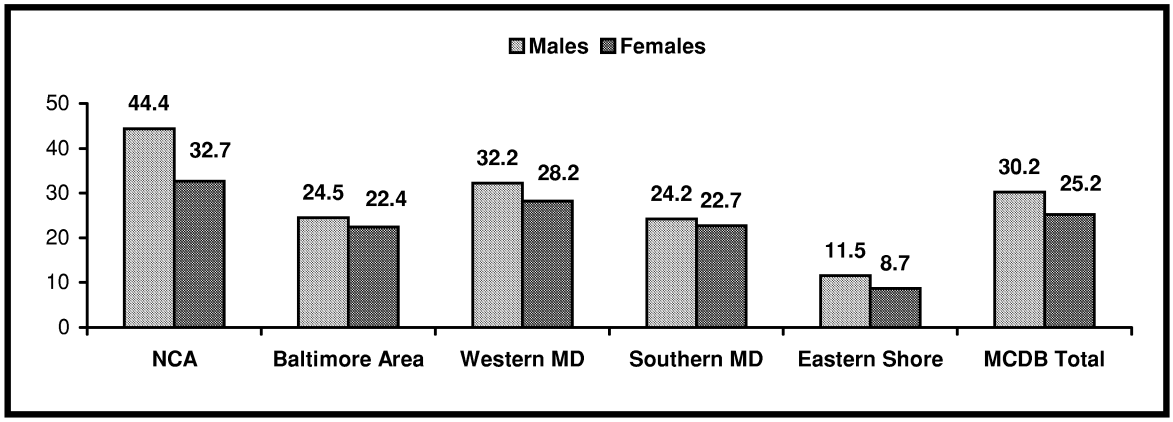


Figure 3-3: Rates of Change in Numbers of Patients by Gender, Overall and by Region, Private HMO, 1998-1999



HMO Patient Concentration

This section presents the proportion of patients in each county/jurisdiction covered by the nine companies that offer HMO products submitting data to MHCC in 1999. See Table 3-1 and Figure 3-4.

- For private HMO patients the four largest corporations cover 80 percent of patients in the MCDB (data not shown).
- A small number of corporations provide coverage to the majority of patients in every county/jurisdiction in the state.

Table 3-1: Number of HMOs That Provide Primary Coverage for at Least 50 Percent, 67 Percent, and 80 Percent of the HMO Patients in the County/Jurisdiction, Private HMO, 1999

County/Jurisdiction	Number of HMOs by Percent of Patients Covered[a]			Herfindahl-Hirschmann Index (HHI)[3]
	50%	67%	80%	
Allegany	2	2	3	3,608
Anne Arundel	2	3	4	2,281
Baltimore	2	2	4	2,143
Baltimore City	1	2	4	3,155
Calvert	2	2	3	3,031
Caroline	1	1	2	5,222
Carroll	2	3	4	2,166
Cecil	2	3	3	2,573
Charles	2	3	4	2,194
Dorchester	1	1	1	6,730
Frederick	1	2	3	3,514
Garrett	1	2	2	4,775
Harford	2	3	4	2,199
Howard	2	3	3	2,553
Kent	1	1	2	5,927
Montgomery	2	3	4	2,078
Prince George's	2	2	4	2,235
Queen Anne's	2	2	3	3,187
Saint Mary's	2	2	3	3,093
Somerset	1	2	2	5,476
Talbot	1	1	2	5,853
Washington	1	2	3	3,329
Wicomico	1	1	2	5,749
Worcester	1	2	2	5,185

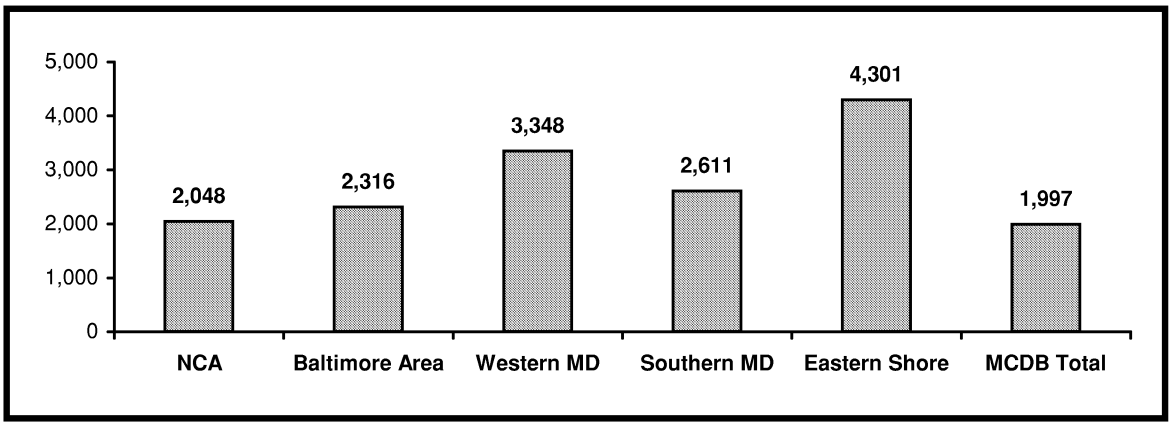
[a] Does not include out-of-state firms that may sell to Maryland residents or insurers who only sell in the Federal market.

[3] The HHI is calculated as the sum of the squares of the percentage share of each corporation in a market. For example, if there are four sellers in a market area with shares of 40 percent, 30 percent, 20 percent, and 10 percent of patients respectively, the HHI=$40^2 + 30^2 + 20^2 + 10^2 = 1600 + 900 + 400 + 100 = 3000$.

Figure 3-4 provides a visual picture of the patient coverage concentration as measured by the Herfindahl-Hirschmann Index (HHI). HHI is used here as a way of measuring the choice of health insurance coverage among firms for the HMO segment of the insurance industry. The development of a more appropriate index, that would describe concentration on the supply side of this industry, would require a more formal and complicated model of industry behavior or insurance purchasing decisions. In very competitive markets the HHI is small; where a single firm is the sole supplier the HHI = 10,000.

The data indicate that the HHI for all private HMO patients in the MDCB is 1,997. However the concentration in each region is higher than for the MCDB as a whole, and it is most concentrated among residents of the Eastern Shore. It is important to note that these concentration estimates do not include non-HMO patients.

Figure 3-4: Measures of Private HMO Patient Concentration by Region, 1999



Annual Service Use (RVUs) Per Patient and Payment per Unit of Care

This section examines how annual use of practitioner services, as reflected in work relative value units (RVUs), changed for the typical HMO patient from 1998 to 1999. Total work RVUs represent all covered services reimbursed under fee-for-service arrangements and services from specialists that were reimbursed through capitated payments. A standardized unit of care, RVUs permit utilization comparisons in the absence of complete information on reimbursement. Table 3-2 presents median annual RVUs per patient and mean payment per RVU by age group and by region of patient residence. Mean payment per RVU is included to examine differences in fee-for-service payment per standardized unit of care.

- The median annual RVUs per patient was 2.7 for all private HMO patients in the MCDB in 1999, an increase of 3.5 percent compared to 1998.

- Overall and in every region the highest RVU-per-patient medians were for infants (3.8 overall) and older adults 45-64 (3.9). RVU use was considerably less for adults aged 18-44 (2.7) and, especially, children 1-17 (1.9). This pattern appropriately reflects the greater use of practitioner care by infants, who have frequent visits during their first year, and older adults, who are more likely to have serious chronic illnesses than are younger patients.

- Within each age category, the median RVU use per patient varies somewhat by region. For all age groups except infants, the 1999 medians are highest for patients residing in the Eastern Shore. This may reflect a greater illness burden among residents of the Eastern Shore, or might result from reimbursement practices used by HMOs for patients in this region.[4] Median utilization by infants is highest in Southern Maryland and unusually low in Western Maryland. NCA exhibits the lowest medians for both children and older adults.

- On average, median RVU use increased in 1999 for three of the four age groups; it decreased for children. However, each region had a different pattern of change. Median RVU use increased in all age groups for residents of the Eastern Shore or, to a less extent, the Baltimore area. Western Maryland exhibited declines in all medians, excluding children. The other regions had mixed patterns of increases and reductions in median RVU use by age.

- For HMO FFS practitioner services in 1999 the overall mean payment per RVU was $69, the same as the 1998 mean. Overall and in every region, older adults received practitioner services associated with the highest mean payment per RVU ($72 on average). Children aged 1-17 received services with the lowest reimbursement ($63) in three regions, with infant service means even lower for the Baltimore and Southern Maryland areas.

- Mean payments per RVU were highest for services provided to residents of the Eastern Shore region, excluding older adult services for which the mean in NCA was even higher. NCA means ranked second for both infant and children services. The Baltimore region exhibited the lowest per RVU payment means (non-rounded).

- On average, mean payment per RVU increased slightly in 1999 for adults but decreased for infants and children. However, there was considerable regional variation in the pattern of change. The Eastern Shore and Western Maryland had per unit payment increases for all services regardless of patient age, while Southern Maryland exhibited declines for all patient ages.

[4] Less frequent use of capitation to reimburse primary care services will result in a more complete picture in the MCDB of a patient's covered service use.

Table 3-2: Median Work RVU per Patient and Mean Fee-for-Service Payment per Work RVU[5] by Age Group and Region, Private HMO, 1998-1999

Age and Region	Median Work RVU per Patient			Mean FFS Payment per Work RVU		
	1998	1999	% change	1998	1999	% change
All Ages and Regions	**2.6**	**2.7**	**3.5%**	**$69**	**$69**	**- 0.01%**
Infants	**3.7**	**3.8**	**2.8**	**68**	**64**	**- 5.2**
NCA	4.1	4.0	- 4.0	70	70	- 0.9
Baltimore	3.6	3.8	6.2	64	57	-10.8
Western Maryland	3.3	3.0	- 9.2	65	66	2.4
Southern Maryland	4.5	4.6	2.7	69	60	-13.2
Eastern Shore	3.5	4.0	13.7	64	72	12.5
Children 1-17	**1.9**	**1.9**	**- 2.1**	**66**	**63**	**- 3.7**
NCA	1.7	1.6	- 10.7	66	64	- 3.2
Baltimore	2.0	2.0	2.3	65	62	- 5.2
Western Maryland	1.7	1.7	3.2	62	63	2.0
Southern Maryland	1.9	1.7	-12.1	68	63	- 7.2
Eastern Shore	2.1	2.4	13.8	65	66	1.7
Adults 18-44	**2.6**	**2.7**	**5.4**	**69**	**69**	**1.1**
NCA	2.5	2.7	8.7	70	70	0.6
Baltimore	2.6	2.7	5.4	67	68	1.6
Western Maryland	2.9	2.8	- 3.2	69	70	1.6
Southern Maryland	2.5	2.7	6.3	69	68	- 1.4
Eastern Shore	2.9	3.1	7.7	70	73	4.5
Adults 45-64	**3.6**	**3.9**	**5.9**	**72**	**72**	**0.3**
NCA	3.3	3.6	11.2	74	73	- 0.7
Baltimore	3.8	3.9	4.8	70	71	0.6
Western Maryland	4.1	3.9	- 4.6	69	73	4.6
Southern Maryland	3.4	3.8	9.5	74	71	- 3.3
Eastern Shore	4.0	4.3	7.8	71	73	3.8

[5] Applies only to those practitioner services reimbursed by HMOs on a fee-for-service basis.

Medical Conditions for Which Patients Sought Treatment

This section describes trends in medical conditions and external factors (ICD-9 Diagnosis Codes) associated with services provided by practitioners. The unique diagnosis codes[6] for all services in the MCDB (excluding radiology and lab) received by a patient were grouped using Expanded Diagnosis Clusters (EDCs)[7] and their summary categories, Major Expanded Diagnosis Clusters (MEDCs), shown in boldface, in Table 3-3.

- In 1999 the largest proportion of recipients sought practitioner care for conditions or concerns that required Examination and screening (43.8 percent), including surgical aftercare. The second, third, and fourth most common reasons for care were Ear, nose and throat problems (23.3 percent of patients); Orthopedic problems (17.8 percent); and Skin conditions (17.3 percent). The majority of persons seeking Ear, nose and throat services were patients with acute upper respiratory tract infections.

- Between 1998 and 1999 the number of HMO patients for whom valid diagnostic information were available increased by 26.0 percent. (This differs from the reported 26.8 percent increase in HMO patients overall due to missing diagnostic data). Several MEDCs exhibited growth in their numbers of patients that were higher than the 26.0 percent growth in patients overall. Among these were Ophthalmologic disorders, General complaints, Blood diseases, Examination and screening, Gastrointestinal conditions, and Cancer.

- The number of patients with Ophthalmologic disorders grew by 54.8 percent from 1998 to 1999, due to a doubling of patients seen for refractive errors. This increase is mainly a result of more complete data submissions by HMOs with regard to vision care. Similarly, more complete primary care data is likely responsible for the large increase in patients with general complaints.

- MEDCs which occur less frequently among HMO patients in the 1999 MCDB include Psychosocial problems and Infectious diseases. The apparent decline in the proportions of patients with these conditions, like the increase in refractive errors, is mainly a consequence of more complete HMO data in 1999, which included services that were underrepresented in the 1998 MCDB.

- Although the total number of patients seen for Allergic reactions in 1999 did not exhibit an above-average increase, growth in the numbers of patients with either asthma (28.3 percent) or allergic rhinitis (27.4 percent) was above average.

- Other EDCs associated with above average growth in the number of patients having that type of diagnosis include disorders of lipoid metabolism (e.g., high cholesterol) within Cardiovascular conditions and benign and unspecified neoplasms within Common surgical conditions.

[6] Each practitioner service contributed up to three different diagnosis codes.
[7] Christopher B. Forrest, MD, Ph.D. Health Services Research and Development Center, Johns Hopkins School of Public Health, July 30, 1999.

Table 3-3: Trends in Numbers and Proportions of Recipients with Major Expanded Diagnosis Clusters (MEDCs) and Selected Expanded Diagnosis Clusters (EDCs), Private HMO, 1998-1999

Expanded Diagnosis Clusters	Number of Recipients		Percent of All Recipients	
	1999	Change 1999-98	1998	1999
MCDB Total	**1,101,103**	**26.0%**	**100.0%**	**100.0%**
Examination and screening	482,234	29.4	42.7	43.8
Ear, nose, throat problems	256,217	23.4	23.8	23.3
Otitis media	76,144	19.3	7.3	6.9
Sinusitis	65,884	21.2	6.2	6.0
Acute upper respiratory tract infection	149,920	24.0	13.8	13.6
Orthopedic problems	195,734	18.2	18.9	17.8
Low back pain	58,552	22.1	5.5	5.3
Skin conditions	190,362	19.0	18.3	17.3
Common surgical conditions	180,614	25.4	16.5	16.4
Benign and unspecified neoplasm	77,161	27.5	6.9	7.0
Pregnancy and female reproductive related conditions	168,684	24.1	15.6	15.3
Ophthalmologic disorders	157,110	54.8	11.6	14.3
Refractive errors	96,874	104.6	5.4	8.8
Cardiovascular conditions	124,974	25.6	11.4	11.3
Hypertension	73,873	24.3	6.8	6.7
Disorders of lipoid metabolism	42,093	35.5	3.6	3.8
General complaints	113,491	42.4	9.1	10.3
Allergic reactions	101,835	25.3	9.3	9.2
Asthma	41,911	28.3	3.7	3.8
Allergic rhinitis	60,108	27.4	5.4	5.5
Pulmonary conditions	92,789	22.7	8.7	8.4
Acute lower respiratory tract infection	57,704	26.8	5.2	5.2
Gastrointestinal conditions	88,326	28.4	7.9	8.0
Neurologic conditions	84,212	23.1	7.8	7.6
Rheumatologic conditions	80,044	23.3	7.4	7.3
Musculoskeletal signs and symptoms	66,039	23.2	6.1	6.0
Psychosocial problems	78,343	11.5	8.0	7.1
Depression, anxiety, neuroses	47,423	9.9	4.9	4.3
Urinary and kidney conditions	75,061	23.6	6.9	6.8
Endocrinologic/metabolic conditions	70,984	26.0	6.4	6.4
Diabetes mellitus	35,891	21.8	3.4	3.3
Infectious diseases	45,942	12.5	4.7	4.2
Facial and skin reconstruction	29,937	-1.0	3.5	2.7
Blood diseases	19,133	33.0	1.6	1.7
Cancer	18,997	27.2	1.7	1.7
Disorders of the mouth	8,179	8.3	0.9	0.7
Poisoning	7,271	11.0	0.7	0.7
Developmental and genetic disorders	3,235	16.4	0.3	0.3

Common and Most Costly Services Received

This section describes trends in the use of specific types of services between 1998 and 1999. Table 3-4 documents the proportions of HMO patients and their total services that are associated with each BETOS service category listed and how these proportions changed from 1998 to 1999. Information is also provided on the distribution of HMO fee-for-service (FFS) payments (including patient co-payments), which account for about 53 percent of all HMO services in the MCDB. Because the payment information is limited to a subset of HMO services, it is discussed independently of the patient and service volume distributions.

- The type of service most common among HMO patients in the 1999 MCDB – as measured by the share of patients who received this service – was Evaluation & Management (E&M) services. Nearly 4/5 of all patients received at least one E&M service. Also, more than half of the patients received at least one Testing service. Less than 1/3 of these patients underwent one or more Procedures and about 1/4 received at least one Imaging service. Less than 1/10 received Other types of services.

- Most of the patients in each of the major BETOS categories discussed above received routine services: E&M during an office visit, standard tests and imaging, and ambulatory and minor procedures. But more than 1/10 of these HMO patients obtained care (e.g., E&M) during visits to emergency rooms, about the same as the share of non-HMO privately insured patients who obtained in emergency rooms (see Table 2-4). This similarity is reportedly due to looser utilization management by HMOs coupled with increased demand due to fewer urgent care facilities, a source of non-critical emergency care for many HMO patients.

- In terms of service volume, the most commonly delivered type of service in 1999 was Tests, at 36.7 percent of all services, followed closely by E&M (36.1). Together they accounted for nearly 3/4 of the services received by these HMO patients.

- The significant improvements in both the quantity and quality of 1999 HMO data, compared to 1998, are reflected in dramatic increases in the numbers of patients and services in nearly every BETOS category listed. However, these improvements make it difficult to interpret the increases in patients and services observed in 1999. For example, regarding Ophthalmology E&M, the 70 and 55 percent increases in the number of patients and volume of services, respectively, are attributable to more complete data for vision care, in particular, not to a dramatically higher incidence of eye problems in this patient population. The 1998-1999 changes are provided mainly as a way to identify the types of services for which data submissions improved the most. Besides vision care, other HMO services more fully captured in the 1999 MCDB include: tests (especially standard tests); dialysis; specialized imaging (advanced and ultrasound); home/nursing home and emergency room E&M; Other services; anesthesia; and oncology services.

- The most costly services for HMO patients are inferred from the shares of total FFS payments attributable to the different BETOS categories. Procedures account for a higher share of total expenditures than any other category (40.7 percent), and more than half of procedures' spending is for ambulatory & minor procedures and major orthopedic procedures. Expenditures for E&M services are more than 1/3 of total spending, with office and consultation E&M together accounting for more than 1/5 of total practitioner spending.

Table 3-4: Percent Distribution of Recipients, Services, and Payments (HMO FFS) and Trends by Service Category, Private HMO, 1998-1999

BETOS[8] Category	Share of Recipients 1999	Change in Number of Recipients[9]	Percent of Services 1999	Change in Number of Services	Share of Total HMO FFS Payments 1999
Evaluation & Management Services	**79.0%**	**22.3%**	**36.1%**	**13.8%**	**36.1%**
In Office	62.4	21.4	22.5	11.5	16.2
In Hospital	3.1	17.4	1.7	10.5	3.2
In Emergency Room	13.1	22.1	2.2	21.0	4.1
At Home & Nursing Home	0.2	33.2	0.1	29.0	0.1
For Mental Health	3.0	-3.0	2.7	10.6	3.5
For Ophthalmology	8.5	70.0	1.4	54.8	0.9
For Other Specialty Care	11.0	14.0	2.4	16.0	1.9
For Consultation (requested)	18.3	19.6	3.1	15.7	6.2
Procedures	**30.7**	**21.9**	**14.5**	**18.4**	**40.7**
Ambulatory and Minor Procedures	25.3	23.2	11.4	17.8	12.9
Anesthesia[10]	2.4	34.2	0.4	23.7	1.9
Major Cardiovascular Procedures	0.6	19.3	0.2	8.3	1.7
Major Orthopedic Procedures	0.5	19.3	0.1	17.0	1.9
Major Other Procedures	3.0	19.8	0.6	17.3	12.0
Eye Procedures	0.4	20.1	0.1	16.7	1.0
Oncology	0.3	24.8	0.6	21.1	1.1
Endoscopy	5.4	20.9	1.1	20.6	7.8
Dialysis	0.1	29.7	0.2	46.9	0.4
Imaging	**26.2**	**20.8**	**7.9**	**19.5**	**11.1**
Standard Imaging	20.3	18.3	4.8	15.7	3.7
Advanced Imaging: CAT & MRI	4.7	38.4	0.9	34.9	3.7
Ultrasound	7.7	22.2	2.0	24.0	3.3
Imaging for Procedures	0.5	18.5	0.2	9.1	0.4
Tests	**54.2**	**26.9**	**36.7**	**80.7**	**6.1**
Standard Tests	47.8	28.1	33.1	93.1	2.9
Electrocardiograms, Stress Tests, EKG Monitoring	9.0	10.5	1.7	7.2	1.4
Other Tests			1.9	21.2	1.9
Other (DME, Provider Administered Drugs, Other Services)	**9.4**	**26.0**	**2.6**	**24.1**	**4.9**

[8] Berenson-Eggers Type of Service (BETOS) CPT-4/HCPCS procedure code system, Health Care Financing Administration, available at http://www.hcfa.gov/stats/BETOS/betos.htm. Services that did not contain procedure codes recognized in the BETOS classification have been deleted.

[9] Some patients have only services that cannot be classified into BETOS categories. Therefore, the percent change in total number of patients reported here differs from the 26.8 percent reported at the beginning of the chapter because it is based on fewer patients.

[10] The MHCC believes that the level and growth in anesthesia services may be underestimated because some payers allow anesthesiologists to use the surgical code and a modifier when billing for service; if the payer does not supply the modifier, the service is identified as surgery rather than anesthesia.

Trends in FFS Payments to Different Practitioner Specialties

This section examines the proportion of FFS payments (including patient co-payments) received by the different categories of physicians and other practitioners who obtained at least 1 percent of total FFS payments in 1999. The absence of data on capitated payments prohibits examining expenditures for all of the HMO services in the MCDB. See Table 3-5.

- Among practitioners with an identified specialty, the largest share of FFS payments in both 1998 and 1999, 9.3 percent, went to physicians whose specialty was Obstetrics/Gynecology. General Surgeons ranked second, accounting for 8.1 percent of payments in 1999. Their FFS payment share was dramatically higher than in 1998 due to improvements in the quality and quantity of data submitted by HMOs.

- Other physician specialties listed in Table 3-5 whose services and FFS reimbursements were more accurately reflected in the data for 1999 include Hematology, Anesthesiology, Allergy & Immunology, and Dermatology.

- The expanded 1999 data produced apparent decreases in FFS payment shares for the primary care physician specialties (Pediatrics, Internal Medicine, Family Practice, and General Practice). These relatively large declines do not reflect real changes in payment distribution, but rather point out that certain types of services were more likely to be missing in the 1998 MCDB than were others (e.g., care delivered by primary care physicians). Other physician specialties listed in the table whose payment shares were similarly affected by the change in data include Psychiatry, Cardiology, Radiology, and Orthopedic Surgery.

- Improved HMO data submissions also affected services provided by Non-physician Health Care Professionals and Other Providers. Services and associated FFS payments rendered by Facilities and Independent Laboratories were favorably affected by the change. Additionally, the FFS payment share to Opticians/Optometrists (0.4 percent of payments in 1999 – not in Table) increased by more than 12,000 percent over 1998 due to more complete submission of vision care. And the share for Alcohol/Drug Detox Services (0.1 percent of 1999 payments – not in Table) grew by nearly 2,000 percent. As with primary care physicians, most of the apparently large reduction in payment share for Physical Therapists in 1999 results from their services having been accurately represented in both 1998 and 1999 data.

- For some of the "complementary care" Non-physician Health Care Professionals, who have very small (less than 0.1 percent) payment shares, some of their relatively large increases in payment shares in 1999 may, in part, be related to more liberal benefit coverage for complementary services. Osteopathy (manipulations) payment share increased by 567 percent and Acupuncture payment share increased by 122 percent (data not shown).

Table 3-5: Trends in Share of Total FFS Payments by Practitioner Specialty[11] Private HMO, 1998-1999

Practitioner Specialties	Specialty's Share of Total FFS Payments		Difference 1998-1999	Percent Change in Payment Share 1998-1999
	1998	1999		
Physicians:				
Multi-Specialty Medical Practice[12] or Freestanding Clinic		2.0%		
Obstetrics/Gynecology	9.3%	9.3	0.0	0.1%
General Surgery	3.2	8.1	4.9	156.6
Pediatrics	7.5	5.0	-2.5	-32.7
Radiology	5.5	4.8	-0.7	-12.8
Internal Medicine	6.3	4.7	-1.6	-24.8
Anesthesiology	3.3	4.4	1.1	34.4
Orthopedic Surgery	4.6	4.2	-0.4	-9.9
Cardiology	4.5	4.0	-0.5	-13.0
Emergency Medicine	3.1	3.1	0.0	0.7
Family Practice	3.4	3.1	-0.3	-8.9
Otology/Laryngo/Rhino/Otolaryngo	2.2	2.2	0.0	1.0
Gastroenterology	2.0	2.1	0.1	2.7
Dermatology	1.7	1.8	0.1	9.5
Ophthalmology	1.7	1.7	0.0	-0.4
Surgical Specialty Not Listed Here	1.6	1.5	-0.1	-9.0
Urology	1.2	1.3	0.1	6.6
Neurology	1.4	1.3	-0.1	-4.5
Oncology	1.3	1.3	0.0	-5.1
Hematology	0.8	1.2	0.4	39.7
Psychiatry	2.0	1.2	-0.8	-40.0
Allergy & Immunology	0.9	1.1	0.2	28.9
General Practice	1.1	1.0	-0.1	-3.8
Nonphysician Health Care Professionals and Other Providers:				
Freestanding Surgical Facility	2.7	3.2	0.5	17.8
Physical Therapist	1.9	1.6	-0.3	-15.2
Independent Laboratory	1.1	1.4	0.3	24.0
Other Facility	0.7	1.3	0.6	89.9
Freestanding Imaging Center	1.1	1.1	0.0	6.9
Total FFS Payments for All Specialties	**$384,539,195**	**$448,106,528**	**16.5**	

[11] Table 3-5 excludes three categories: miscellaneous physician specialties (public health and industrial medicine); physicians without an identified specialty; and practitioner specialty unknown. Together these accounted for 21.0 percent of total FFS payments in 1999. The percent change in payment share cannot be calculated from the data in this table because the 1998 and 1999 specialty shares presented in the table have been rounded.

[12] Multi-specialty medical practice is a new category added in 1999

APPENDIX A

CONTRIBUTORS TO THE 1999 MEDICAL CARE DATA BASE

PAYER NAME	Non-HMO	HMO	PAYER NAME	Non-HMO	HMO
Aetna Health Plans of the Mid-Atlantic, Inc. (VA) [A]		✔	John Hancock Mutual Life Insurance Co. [E]	✔	
Aetna Life Insurance Co. [A]	✔		Kaiser Foundation Health Plan of Mid-Atlantic		✔
Aetna U.S. Healthcare, Inc. (MD) [A]		✔	MAMSI Life and Health Insurance Co. [F]	✔	
Allianz Life Insurance Co. of North America	✔		Maryland Fidelity Insurance Co.	✔	
American Republic Insurance Co.	✔		MD-Individual Practice Association, Inc. [F]		✔
Anthem Health & Life Insurance Co. [B]	✔		Mega Life & Health Insurance Co. [G]◆		
CareFirst-BlueCross BlueShield of National Capital Area, Inc. [C]	✔		Metropolitan Life Insurance Co. [B]	✔	
CareFirst-BlueCross BlueShield of Maryland, Inc. [C]	✔		National Group Life Insurance Co. [H]	✔	
CapitalCare [C]		✔	New York Life Insurance Co. [A]	✔	
Celtic Life Insurance Co.	✔		NYLCARE Health Plans of the Mid-Atlantic [A]		✔
CIGNA Healthcare Mid-Atlantic, Inc.		✔	Optimum Choice Inc. [F]		✔
Connecticut General Life Insurance Co.	✔		PFL Life Insurance Co. [G]◆		
Conventry Health Care of Delaware, Inc.		✔	PHN-HMO, Inc.		✔
Corporate Health Insurance Co. [A]	✔		Principal Mutual Life Insurance Co.	✔	
Delmarva Health Plan, Inc. [C]		✔	Prudential Healthcare, Inc. [A]		✔
Educators Mutual Life Insurance Co.	✔		Prudential Insurance Co. of America [A]	✔	
First Allmerica Financial Life Insurance Co.	✔		ReliaStar Life Insurance Co.	✔	
Fortis Benefits Insurance Co. [D]	✔		State Farm Mutual Automobile Insurance Co. ◆		
Free State Health Plan, Inc. [C]		✔	Trustmark Insurance Co.	✔	
George Washington University Health Plan		✔	UNICARE Life & Health Insurance Co. [E]	✔	
Golden Rule Insurance Co.	✔		Union Labor Life Insurance Co.	✔	
Graphic Arts Benefit Corporation	✔		United Healthcare Insurance Co.	✔	
Great-West Life & Annuity Insurance Co. [B]	✔		United Healthcare of the Mid-Atlantic		✔
Guardian Life Insurance Co. of America	✔		United Wisconsin Life Insurance Co.	✔	
Humana Employers Health Insurance Co.	✔		Washington National Insurance Co. [H]	✔	
John Alden Life Insurance Co. [D]	✔				

◆ = Data excluded for quality reasons

Note: *This list does not include companies identified in 1998 as meeting the premium threshold that merged with other payers or ceased operation during 1999.*

For patient concentration analysis, companies consolidated into the following:

[A] = Aetna U. S. Healthcare, Inc.
[B] = Great-West Life & Annuity Insurance Co.
[C] = CareFirst BlueCross BlueShield, Inc.
[D] = Fortis Benefits Insurance Co.
[E] = UNICARE Life & Health Insurance Co.
[F] = MAMSI Life & Health Insurance Co.
[G] = PFL Life Insurance Co.
[H] = National Group Life Insurance Co.

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